Center Innovation Fund: GSFC CIF

Laser Source for Atomic Gravity Wave Detector

Completed Technology Project (2010 - 2012)

Project Introduction

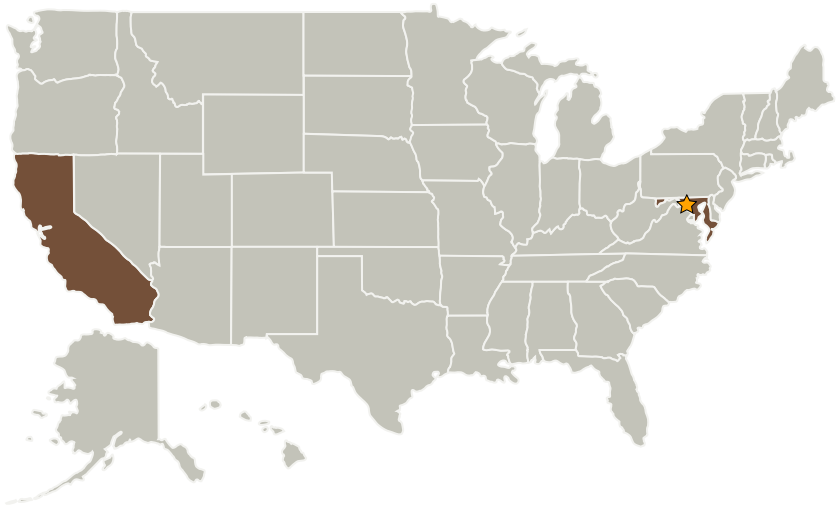
The Atom Interferometry (AI) Technology for Gravity Wave Measurements demonstrates new matter wave Interferometric sensor technology for precise detection and measurement of primordial gravity waves and space geodesy.

Develop an Atom Interferometry-based gravity wave detector (vs Optical Interferometry). Characterize a high power laser and monitoring the frequency and the Fourier transform. Use Goddard Space Flight Center Mission Design Lab to study a single flyer with boom and developed cost estimate. Also funded a study at Stanford on Large Momentum Beam Splitters applications for Detection of Gravity Waves using Atom Interferometry.

Anticipated Benefits

N/A

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
AOSense, Inc.	Supporting Organization	Industry	Sunnyvale, California

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Primary U.S. Work Locations	
California	Maryland

Project Website:

http://aetd.gsfc.nasa.gov/

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Innovation Fund: GSFC CIF

Project Management

Program Director:

Michael R Lapointe

Program Manager:

Peter M Hughes

Project Manager:

Michael A Johnson

Principal Investigator:

Babak N Saif

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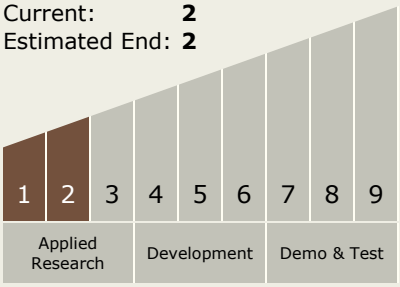
Technology Maturity (TRL)

Start: **1**
Current: **2**
Estimated End: **2**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes